# THE WARNER RIVER

## A Report to the General Court

**New Hampshire Rivers Management and Protection Program**
**Department of Environmental Services**
**Office of the Commissioner**
**September 2017**

NHDES

# The Warner River
# A Report to the General Court

**State of New Hampshire**
**Department of Environmental Services**
**Water Division – Watershed Management Bureau**
**29 Hazen Drive**
**Concord, NH 03302-0095**

**Robert R. Scott**
**Commissioner**

**Clark Freise**
**Assistant Commissioner**

**Eugene Forbes, P.E.**
**Water Division Director**

**Prepared by:**
**Tracie Sales**
**Rivers Coordinator**

**September 2017**

# TABLE OF CONTENTS

# I. INTRODUCTION

The Warner River flows east from its headwaters in Bradford through the towns of Warner, Sutton, and Webster until it merges into the Contoocook River in Hopkinton. The Contoocook River is a major tributary to the upper Merrimack River, both of which were designated into the New Hampshire Rivers Management and Protection Program (RMPP) in 1991 and 1990, respectively.

This nomination of the Warner River includes the entire mainstem of the river from Bradford to Hopkinton as well as 1.1 miles of the West Branch Warner River in Bradford. In total, 20.1 miles of 5$^{th}$ order river in five towns are being nominated for inclusion into the Rivers Management and Protection Program.

The Rivers Management and Protection Act (RSA 483) was enacted in 1988. The act states in part that:

> *It is the policy of the state to ensure the continued viability of New Hampshire rivers as valued ecologic, economic, public health and safety, and social assets for the benefit of present and future generations. The state shall encourage and assist in the development of river corridor management plans and regulate the quantity and quality of instream flow along certain protected rivers or segments of rivers to conserve and protect outstanding characteristics including recreational, fisheries, wildlife, environmental, hydropower, cultural, historical, archaeological, scientific, ecological, aesthetic, community significance, agricultural, and public water supply so that these valued characteristics shall endure as part of the river uses to be enjoyed by New Hampshire people.*

The act directs NHDES and the Rivers Management Advisory Committee (RMAC) to receive and evaluate nominations for the designation of rivers or river segments to protect outstanding values and characteristics. Nominations approved by the NHDES Commissioner shall be forwarded to the General Court for review and approval in the next legislative session following the nomination. In fulfillment of this statutory directive, the nomination of the Warner River is hereby forwarded to the General Court.

NHDES recommends that the Warner River be designated as a protected river under the RMPP. NHDES further recommends that the various segments of the river be classified as "rural," "rural-community," and "community" as described in the Summary and Recommendations contained in this report, thereby affording it a balance of the ecological and community use protection measures outlined in RSA 483. The outstanding statewide, regional and local resource values and characteristics that qualify the Warner River for designation are described herein.

# II. THE WARNER RIVER NOMINATION

## A. DESCRIPTION

The Warner River flows east from Bradford through the towns of Warner, Sutton, and Webster to its confluence with the Contoocook River in Hopkinton. The Contoocook River, designated into the RMPP in 1991 is a major tributary to the upper Merrimack River, one of the first rivers designated into the Rivers Program in 1990.

This nomination of the Warner River includes the entire mainstem of the river from Bradford to Hopkinton as well as 1.1 miles of the West Branch Warner River in Bradford. In total, 20.1 miles of 5$^{th}$ order river in five towns are being nominated for inclusion into the Rivers Management and Protection Program.

## B. RIVER VALUES AND CHARACTERISTICS

The Rivers Management and Protection Program identifies a number of river-related values and characteristics that may qualify a river for designation. The Warner River supports many of these, including a variety of natural, managed, cultural, recreational and other resource values. Some are significant at the local level, others are significant at the regional, state or national level. The resource values that qualify the Warner River for designation include geology, wildlife, vegetation and natural communities, fish, water quality, natural flow characteristics, open space, impoundments, hydroelectric potential, history and archeology, community resources, fishing, boating, other recreation, public access, scenery, land use, land use controls, water quantity, riparian interests, and scientific study.

### 1. Natural Resources

#### a. Geologic Resources

Geological resources of local, regional and statewide significance exist within the Warner River corridor. High transmissivity stratified-drift aquifers are located all along the river, with the most expansive of these aquifers found near the termination of the Warner River, as this area was once a glacial lake. In the past, both almandite, a common type of garnet used primarily as an industrial abrasive, and soapstone, used in stoves and hearthstones, were extracted commercially, though neither of these minerals is mined today. The Warner River corridor, which extends ¼ mile on either side of the nominated river, contains over 9,700 acres of farmland of local importance, with 230 acres having been deemed of statewide importance.

#### b. Wildlife Resources

Nearly half of the Warner River corridor contains significant wildlife habitat. Of these 2,651 acres, 20 percent is comprised of Highest Ranked Habitat in New Hampshire as defined by the New Hampshire Fish and Game Department's *Wildlife Action Plan*. The river corridor is an excellent location for observing moose, black bear, fisher, and bobcat due to the proximity of large areas of conserved open space, but it is also home to many smaller species of mammals, amphibians, reptiles, birds, and insects. Rare wood turtles and the pygmy snaketail dragonfly can be found in the river corridor, while the state endangered Blanding's turtle and threatened spotted turtle, common loon, and northern black racer live in the greater watershed. Species of special conservation concern found in the watershed are the least bittern, vesper sparrow, and smooth green snake.

**c. Vegetation and Natural Communities**

The river corridor is characterized by hemlock-hardwood pine forest, Appalachian oak-pine forest, floodplain forest, farm land (grassland or hay pastures as well as cultivated fields), with some marsh and shrub wetlands and peatland areas distributed throughout. One exemplary natural community, the temperate minor river floodplain system, is located in the river corridor, while several other exemplary communities thrive in the larger watershed. The Bradford Pines Natural Area, located at the point where the West Branch Warner River joins Hoyt Brook to form the Warner River, is home to some of the oldest white pines in the state. Three state endangered plant species live in the watershed: the small whorled pogonia, which is also nationally threatened, American water-awlwort, and sclerolepis, a flowering plant found in only two locations in New England.

**d. Fish Resources**

The New Hampshire Fish and Game Department has identified the Warner River as a warm water fishery supporting many native fish species as well as a few introduced species. Many of the streams that feed the Warner River contain cold water habitat, however, with over two-thirds of them supporting natural reproduction of native brook trout, which then venture into the Warner River itself. Additional fish species of greatest conservation need found in the river are American eel and burbot.

**e. Water Quality**

The Warner River is classified as a Class B waterbody, suitable for swimming and boating as well as for use as a public water supply after adequate treatment. Water quality impairments for sections of the river are limited to the Aquatic Life impairment due to low pH and dissolved oxygen levels, and the state-wide Fish Consumption impairment due to mercury. Current water quality data on the river is limited, but the river nomination process has reinvigorated a Volunteer River Assessment Program monitoring effort that began collecting data during the summer of 2017 after a 10 year hiatus.

**f. Natural Flow Characteristics**

Flow near the river's headwaters is slow and meandering, but transitions to white water in the Town of Warner. On its course through Warner, the river passes through many breached dams and three active dams, including impounded areas, flatwater, and rapids ranging from class I to class IV depending on flow levels. Flow remains higher, and suitable for paddling, on the Warner River longer into the spring than on surrounding rivers due to the large area of watershed that feeds the river.

**g. Open Space**

Sixteen properties of protected open space totaling over 2,000 acres intersect the Warner River corridor, though only 281 of these acres lie within a quarter mile of the river. One of the most significant of these properties is the Bohanan Farm in Hopkinton, which has been a working dairy farm since the 1930's and also hosts seven miles of public walking trails. The Chandler Reservation is the largest tract of conserved land intersecting the river corridor, and also contains public recreations trails. The 2010 Warner Master Plan identifies the Warner River corridor as one of six natural resource areas where conservation efforts should be focused.

**2. Managed Resources**

**a. Impoundments and Hydroelectric Resources**

Three dams along the Warner River actively impound water, but none are currently used for hydropower generation. Ruins of seven additional dams can be seen in the Warner River channel, showing evidence of the river's historical uses driving industrial machinery. There is one inactive dam that has been used for hydropower generation in the past. The Warner River Nominating Committee has worked closely with dam owners to ensure that designation of the Warner River into the RMPP will not impede the river's future use by interested dam owners to generate hydropower.

**b. Water Withdrawals and Discharges**

There are no registered surface water withdrawals along the Warner River. However, the Town of Warner depends on public water supply wells in the river corridor that are hydrologically connected to the river. Private wells in the communities of Bradford and Hopkinton also draw indirectly from the river. The Warner Waste Water Treatment Facility is the only registered facility that discharges water to the river.

## 3. Cultural Resources

**a. Cultural, Historic and Archaeological Resources**

The Warner River served as critical resource and travelway for the area's original inhabitants, the Pennacooks. Artifacts such as projectile points, scraping tools, hearths, and even human remains have been found in the river corridor. In the 1740's European settlers built log cabins and a sawmill, only to have them burned to the ground by the Pennacooks. The first permanent sawmill was built on the river in 1763, and mills quickly became the center of the settlement and the backbone of the area's economy. Local mills produced cloth, hard-iron, clock weights, wooden boxes, gloves, shoes, bobbins, toys, wood turned chairs, baseball bats, crutches, cloth, clothes pins, hubs, milk can stopples, transformers, and special power supplies. Early residents of the area were concerned about the river's water quality, and in 1906 mill owners were cited for breaking the law by dumping sawdust into the river.

Noteworthy sites along the river on the National Historic Register include the Dalton, Waterloo, and Bement covered bridges as well as the Lower Warner Meeting House. The Waterloo District, with its 24 houses, cemetery, school house, railroad depot, and mill building, is also listed.

**b. Community Resources**

The Warner River is recognized by the five towns through which it flows as a valuable resource. The recreation and natural habitat values are recognized in master plans and natural resource inventories (NRIs). For example, Bradford's 2006 Master Plan recommends discussing watershed and aquifer protection on a regional scale, seeking partnership opportunities to enhance their quality. Similarly, Warner's 2011 Master Plan states a goal of protecting at least 20% of the Warner River corridor. Sutton's 2004 Master Plan recommends protection of shoreland and surface waters through regulatory, educational and voluntary efforts, while Webster and Hopkinton also both recognize the importance of buffers and building setbacks along the water in their master plans.

## 4. Recreational Resources

**a. Fishery**

The Warner River is an excellent freshwater fishery with varied habitat that offers anglers good access to the river and ample opportunity. As NH Route 103 parallels the Warner River, there are many unofficial access points which may be utilized for fishing for stocked rainbow trout, and both stocked and native brook trout.

**b. Boating**

The Warner River is unsuitable for motorized boating due to its size, but American Whitewater identifies it as a highly popular destination for both local and out-of-state paddlers due to its large watershed, long whitewater season, and incredible in-stream features. Seasonally variable flows offer whitewater paddling unique to this part of the state including numerous class IV rapids and a three-foot dam sluice.

**c. Other Recreation**

The Warner River corridor offers year-round recreation opportunities such as wildlife observation and walking in the Bradford Pines Natural Area, hiking and hunting in the Mink Hills, and organized sports at Warner's Riverside Park. A small section of the Concord - Lake Sunapee Rail Trail follows the Warner River from just north of Tom Pond to Bradford, offering walking and biking opportunities with future

expansion planned. Seasonally, several active and breached dams along the river impound sizeable swimming holes that are popular in the summer months. In the winter, a state primary snowmobile trail crosses the river on Joppa Road via the Dalton covered bridge.

**d. Public Access**

NH Route 103 parallels the Warner River for much of its length, offering easy river access for fishing, swimming, and paddling. Six sites along the river provide cartop access for paddlers tackling the whitewater sections of the Warner River, while an additional site at the Swain Lowell Dam offers foot access for both whitewater and swimming. The Bagley Fields athletic park includes swimming access to the river along with athletic fields and a rail trail near the river.

## 5. Other Resources

**a. Scenery**

The Warner River is visible at a number of road crossings and from adjacent roads at many points along its length. Scenic views of the river can be found on bridges and access points throughout the corridor, and views of the surrounding forests and fields are available from the river itself. The steeper topography from Bradford to the I-89 crossing offers pictures of whitewater and surrounding hills. As the land evens out through downtown Warner and through Webster and Hopkinton, the scenery changes as the river calms and becomes wider, providing a more bucolic landscape. All along the river are glimpses of the river's history in the remnants of the dams and mills that were once central features of the river.

**b. Land Use**

Over half of the Warner River corridor is forested, with forest and wetlands combined making up over 70% of the total area within the corridor. Light development, consisting primarily of residential use, accounts for almost 10% of the river corridor while moderate and highly developed areas cover only 3% of the river corridor. Two commercial areas lie within the river corridor, one at Exit 9 of I-89 and the other in downtown Warner.

**c. Land Use Controls**

The five communities along the Warner River are highly conscious of the need for water resource protection through careful land management. All have relatively current master plans along with up-to-date zoning ordinances, zoning districts, and subdivision and site plan review regulations to protect the Warner River. For example, all five communities have water course, water body, and/or wetland setbacks or protection regulations as well as a floodplain development ordinance of some type. All towns also have erosion and sedimentation control and stormwater management regulations for their subdivision and/or site plan review regulations, but three have gone further by adopting erosion and sediment control provisions into their zoning ordinances. These planning tools promote protection of the Warner River and the adjacent land.

**d. Water Quantity**

The USGS stream gauge, 01086000 Warner River at Davisville, is a full record station that lies upstream of the river's confluence with the Contoocook River. Daily streamflow data is available from 1939 to present.

**e. Riparian Interests/Flowage Rights**

The only documented flowage rights or riparian interest is the Warner Village Water District and its ability to appropriate any springs, streams, rivers, or ponds. There are no permitted surface water withdrawals, and only one permitted discharge on the Warner River.

**f. Scientific Resources**

The Warner River is used by local students in school programs to learn about the environment, water

quality, and the fish that live in the river. For example, students in Bradford take part in Trout Unlimited's *Trout in the Classroom* program, raising brook trout and learning about their habitat before releasing them into the river. Studies of the river include the volunteer water quality monitoring, culvert assessments, and an in depth study of wild brook trout in the Warner River watershed.

## III. LOCAL SUPPORT

There is strong local support for the designation of the Warner River into the Rivers Management and Protection Program. Having held one general public information meeting about the nomination in spring of 2016, five more information meetings in November and December of 2016 in each town, and five presentations to each of the Boards of Selectmen, the Nominating Committee submitted the nomination to NHDES May 31, 2017. With the nomination the Department received thirty-four letters of support. One or more endorsements were received from the Board of Selectmen and Conservation Commissions of each of the five municipalities through which the river flows, three municipal planning boards, a water district, one state agency, eight local, state or national non-profit organizations, two nearby local river management advisory committees, and eight local citizens.

On July 11, 2017, the Rivers Management Advisory Committee (RMAC), in coordination with the Warner River Nominating Committee and the NHDES Rivers Program, hosted a public hearing in Warner to receive public comment on the nomination. Approximately 50 people attended the public hearing. Of the four people who spoke at the public hearing, three were in favor of the nomination and the fourth asked a question but did not make a formal comment. In conjunction with the public hearing, a public comment period was held from June 21, 2017 to July 31, 2017. Following the public hearing, five letters and emails supporting the nomination were received, and one email expressing opposition to the nomination was received.

Shortly after the nominating committee began meeting, a few riparian landowners along the Warner River expressed concern about the possibility that designating the river would prevent them from installing hydroelectric facilities in the future due to the restriction on building new dams in designated rivers classified as “natural,” “rural” or “rural-community.” In response to this concern, the nominating committee reached out to riparian landowners, particularly those owning existing and breached dams, to determine their interest in future hydropower operations and rebuilding breached dams. In response to these conversations, the committee has proposed that the river segment containing all but one of the existing or breached dams be classified as a “community” river, allowing for future development of hydropower in this portion of the Warner River. The single breached dam located on a segment of the Warner River not proposed for a “community” classification is owned by a citizen with no interest in rebuilding the dam, and who is satisfied with the proposed “rural” classification.

## IV. SUMMARY AND RECOMMENDATIONS

The Warner River supports a variety of significant state, regional and local resources. To better protect and manage these resources, the Department of Environmental Services recommends the following actions.

***Recommendation 1: The General Court should adopt legislation that designates the Warner River for inclusion in the Rivers Management and Protection Program and designates the Warner River as follows:***

1) Warner River - west branch: as a rural-community river from the confluence with Andrew Brook in Bradford 1.1 miles to the confluence with the Warner River main stem.
2) Warner River - main stem:
   (a) As a rural-community river from the confluence of the West Branch Warner River and Hoyt Brook in Bradford 2.9 miles to the Melvin Mills bridge in Warner.
   (b) As a community river from the Melvin Mills bridge in Warner 1.8 miles to a point immediately downstream of the Swain Lowell Dam.
   (c) As a rural river from a point immediately downstream of the Swain Lowell Dam in Warner 2.9 miles to a point immediately upstream of the Warner River Dam in the Waterloo Village District.
   (d) As a community river from a point immediately upstream of the Warner River Dam in the Waterloo Village District 3.4 miles to the confluence with Bartlett Brook in Warner.
   (e) As a rural river from the confluence with Bartlett Brook in Warner 8.0 miles to the confluence with the Contoocook River in Hopkinton.

Under the provisions of RSA 483, designation of the river will provide increased protection with respect to the construction of new dams, interbasin transfers, and the application of sludge in the river corridor. Designation will also require the establishment of a protected instream flow to maintain water for instream public uses including water quality, fisheries, recreation, and scenic values. A local river management advisory committee will be established to coordinate management and protection of the river at the local and regional levels, and will provide the residents in the riverfront communities with a direct avenue for formal input into state decisions affecting the river. The local river management advisory committee will provide the residents in the riverfront communities with a direct avenue for formal input into state decisions affecting the river. Finally, designation will result in the development of a river corridor management plan that will identify and balance the various local competing uses of the river, such as wildlife, fishing, paddling, waste water assimilation, and hydropower.

The Warner River is being recommended for the "rural," "rural-community" and "community" river classifications. Rural rivers are defined under RSA 483:7-a, I(b) as "...those rivers or segments adjacent to lands which are partially or predominantly used for agriculture, forest management and dispersed or clustered residential development. Some instream structures may exist, including low dams, diversion works and other minor modifications." The West Branch Warner River and the Warner River mainstem as it flows from the Swain Lowell Dam to the Warner River Dam in Warner and again from Bartlett Brook to the Contoocook River encounters primarily forests, with scattered housing, agricultural fields, and open space also contributing to the largely undeveloped areas of the river corridor which typifies the definition of a rural river.

"Rural-community rivers" are defined under RSA 483:7-a, I(c) as "… those rivers or segments which flow through developed or populated areas of the state and which possess existing or potential community resource values such as those defined in official municipal plans or land use controls. Such rivers have mixed land uses in the corridor reflecting some combination of open space, agricultural, residential, commercial and industrial land uses. Such rivers are readily accessible by road or railroad and may

include impoundments or diversions." The Warner River mainstem from its headwaters in Bradford to the Melvin Mills bridge in Warner is flanked by a landscape ranging from forests such as the Bradford Pines Natural Area, to agriculture, historical villages and light industry.

Community rivers are defined under RSA 483:7-a, I(d) as "... those rivers or segments which flow through developed or populated areas of the state and which possess existing or potential community resource values, such as those identified in official municipal plans or land use controls. Such rivers have mixed land uses in the corridor reflecting some combination of open space, agricultural, residential, commercial and industrial land uses. Such rivers are readily accessible by road or railroad, may include existing impoundments or diversions, or potential sites for new impoundments or diversions for hydropower, flood control or water supply purposes, and may include the urban centers of municipalities." The Warner River in Warner, both from the Melvin Mills bridge to the Swain Lowell Dam and from the Warner River Dam to Bartlett Brook, is largely forested but is also easily accessible by road and is considered locally to be an important area for the development of future hydropower. The Warner River Nominating Committee, the Rivers Management Advisory Committee and NHDES have all determined that the river segments recommended above for the "rural," "rural-community" and "community" river classifications meet their respective definitions and should be so designated.

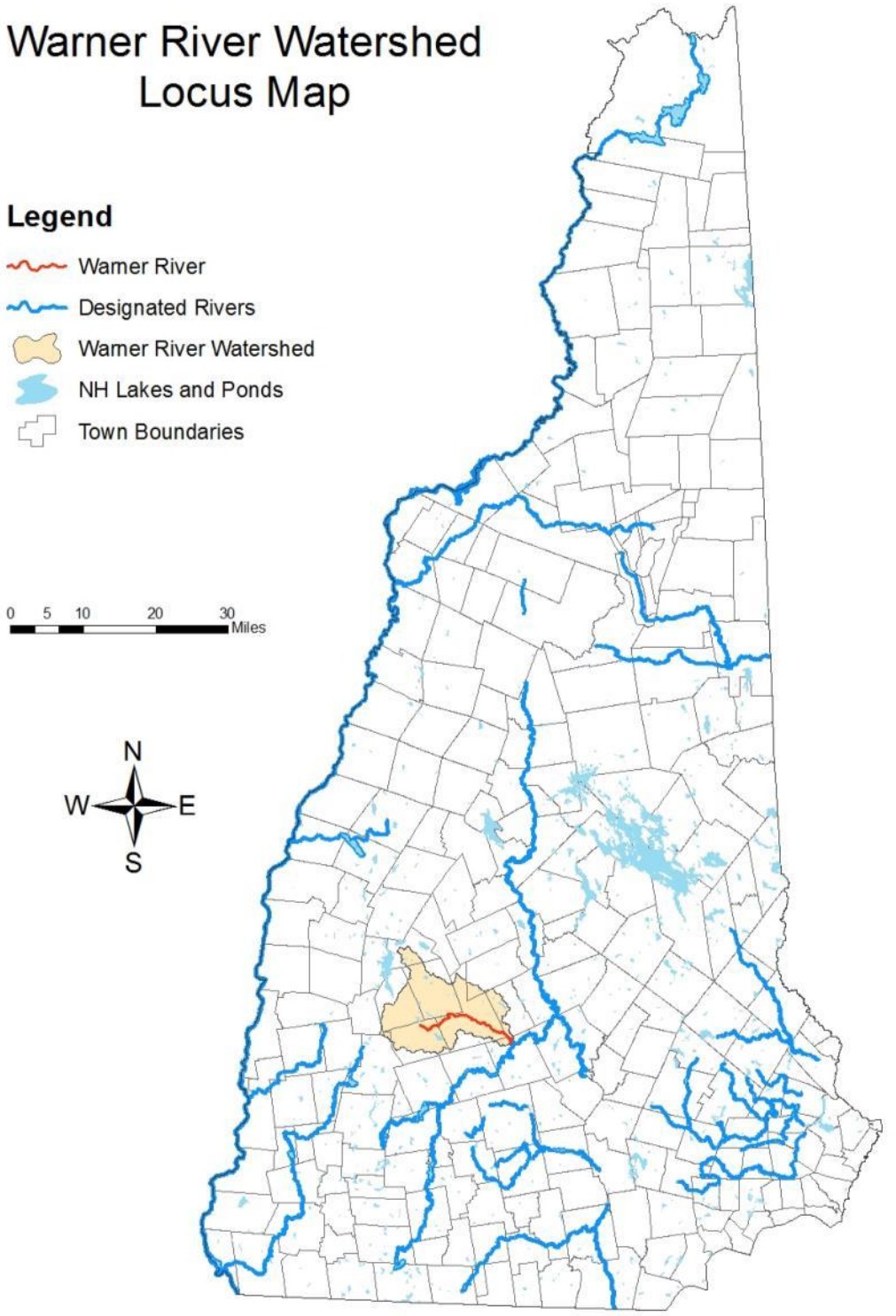
Designation of the Warner River under the Rivers Management and Protection Program will express the intent of the General Court regarding its future management and protection, and will focus attention on the river as a natural resource of both statewide and local significance. This attention will help to ensure greater scrutiny of plans or proposals that have the potential to significantly alter or destroy those river values and characteristics that qualify the Warner River for designation.

***Recommendation 2: The communities of Bradford, Warner, Sutton, Webster, and Hopkinton should continue to work toward the protection of the Warner River through the development, adoption, and implementation of a local river corridor management plan.***

While legislative designation of the Warner River will improve the protection and management of the rivers itself, continuing efforts at the local level will be needed to address the use and conservation of the river corridor (the river and the land area located within a distance of 1,320 feet of the normal high water mark or to the landward extent of the 100 year floodplain). A growing recognition by local citizens and officials of the Warner River's valuable contribution to the overall quality of life in the communities of Bradford, Warner, Sutton, Webster, and Hopkinton through which is flows is evidenced by the communities' desire to see the river designated into the Rivers Management and Protection Program. Citizen appreciation and concern for the river should be reflected in the decisions and actions of local officials. NHDES will provide technical assistance to the local river management advisory committee and to the local officials in these five communities on the development and implementation of a local river corridor management plan.

In summary, a continuing commitment on the part of the local government and residents to protect and manage the river corridor through sound land use planning and decisions will ensure that the outstanding resources of the Warner River will endure to be enjoyed by the people of New Hampshire for many years to come.

## V. MAPS


Warner River Watershed
Locus Map
Legend
Warner River
Designated Rivers
Warner River Watershed
NH Lakes and Ponds
Town Boundaries
0 5 10 20 30
Miles
N
W
E
S
Source: The data layers are derived from DES and Central New Hampshire Regional Planning Commission. The data presented are under constant revision, The New Hampshire Department of Environmental Services (NHDES) is not responsible for the use or interpretation of the information by third parties. Not for legal use. Watershed Management Bureau. August 2017.
Environmental Services

# Warner River and Watershed